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(54) METHOD OF SUPPLYING PLANTS

VERFAHREN ZUR LIEFERUNG VON PFLANZEN

PROCÉDÉ D'APPROVISIONNEMENT DES PLANTES

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(56) References cited:
EP-A1- 0 232 628
WO-A1-2005/120212
WO-A1-2006/106243
WO-A1-2011/014933
WO-A1-2011/162608
WO-A1-93/19581
JP-A- 2002 262 681
JP-A- 2003 102 300
JP-A- S63 287 478
US-A- 4 224 765
US-A- 4 586 288
US-A- 5 203 109
US-A1- 2010 191 677
US-A1- 2012 137 581
US-A1- 2012 272 570

- **VAN RIJSEWIJK VINCENT: "Vijftig miljoen kleine varens op een kluitje", VAKBLAD VOOR DE BLOEMISTERIJ, vol. 40, 6 October 2000 (2000-10-06), pages 361 - 365**
- **Extract from FloraCulture International, January 2001**
- **Extract "World News in Floriculture", FloraCulture International,March 2001**
- **Plant Tissue Culture: Current status and Opportunities, Hussain et al., Recent Advances in Plant in vitro Culture, IntechOpen 2012**
- **Aitken-Christie, Jenny et al., "Automation in plant tissue culture -general introduction and overview" Automation and Environmental Control in Plant Tissue Culture, 1995**
- **Sluis, C., "Integrating automation technologies with commercial micropropagation - an economic perspective"Plant Tissue Culture Engineering, 2008**
- **Implementing Regulation (EU) 2019/2072**

EP 2 966 977 B2

Description

Field of the Invention

[0001] The invention relates to an insert for growing young plants in gel, and to an apparatus for transplanting young plants. More particularly, but not exclusively, the invention relates to an insert for facilitating automated transplanting of plants from the insert into soil.

Background of the Invention

[0002] It is known to provide very large numbers of plants for certain types of jobs such as, for example, planting alongside long stretches of roads and freeways. For such jobs, the plants may be provided in a number of ways such as by way of cuttings, by seeds, by tissue culture, or by division/splitting. However, the applicant has identified that the use of cuttings is not possible for many plants and may be expensive; the use of seeds may provide too great variation in plant type/appearance; division/splitting may require a significant amount of labour, and tissue culture may be prohibitively expensive. However, the applicant has identified that while tissue culture may be an expensive method for growing young embryonic plants, it is beneficial in that it guarantees the most uniformity in the plants grown which is advantageous in large jobs where uniformity of appearance is desired, such as in planting alongside long stretches of freeway roads. Also, the applicant has identified that the growing of plants by using tissue culture enables the plants to be grown in a sterile environment such that the plants can be taken between countries without being quarantine being required, whereas growing plants in soil may be prohibited or result in quarantine for an extended period.

[0003] The ability to transport plants between countries when sterile enables the plants to be originated in a different country from the end market, for example in a laboratory where labour is cheaper. However the applicant has identified that there exists a problem in that the sterile plants need to be transplanted in the destination country, that with existing methods this transplanting needs to be done manually, and that this is expensive in view of the manual labour required in the destination country which is typically a country of high labour cost.

[0004] International Patent Application No. PCT/AU2010/001008 discloses an existing plantlet handling system. The system includes a plurality of plantlet holders which each include a pair of body portions forming, in assembly, an open-topped container. The plantlet handling system of this document is intended for taking plantlets from rooted or non-rooted tissue culture plantlet to a transferable state. Each of the multi-part plantlet holders is provided with a lug or projection for handling the plant holder by manual or mechanical means

[0005] Furthermore, US 2012/272570 A1 discloses a method of supplying plants.

[0006] Examples of the invention seek to provide an improved apparatus and method for growing and transplanting young plants which overcomes or at least alleviates disadvantages associated with existing apparatus and methods.

Summary of the Invention

[0007] In accordance with the present invention, there is provided a method of supplying plants as defined in claim 1.

[0008] Preferably, all of the receptacles are continuous with the common feed reservoir.

[0009] More preferably, the aperture is located in a base of the respective receptacle.

[0010] In one form, there is provided the insert, when in situ in the container, wherein the container contains the gel and the insert is immersed in the gel such that the gel rises to a common level in each of the receptacles.

[0011] Preferably, the insert has one or more feet to support the insert above a floor of the container to provide space beneath the receptacles for the common feed reservoir. More preferably, said one or more feet support the receptacles at least 3mm above the floor of the container.

[0012] In a preferred form, walls of each receptacle are smooth to allow upward removal of the respective gel portion as a plug together with the respective plant for transplanting.

[0013] Preferably, the receptacles are arranged in a grid.

[0014] Preferably, the receptacles are arranged in rows and columns.

[0015] In a preferred form, each of the receptacles tapers inwardly toward a lower end of the receptacle.

[0016] Preferably, a majority of the receptacles are sized with a top of each receptacle being square with 12mm sides, and a bottom being square with 9mm sides.

[0017] Preferably, the insert is circular with a diameter of approximately 95mm.

[0018] In a preferred form, the insert has 37 receptacles.

[0019] It is preferred that the receptacles are arranged in rows from one side to an opposite side with the following number of receptacles in consecutive rows: 3, 5, 7, 7, 7, 5 and 3.

[0020] Preferably, the insert is formed of plastic material.

[0021] Preferably, the container is circular.

[0022] In a preferred form, the container has a lid for maintaining sterility within the container.

[0023] In one form, the gel is agar.

[0024] There is also disclosed an insert for growing plants, including a plurality of receptacles, adapted for insertion into a container, wherein each of the receptacles is arranged for receiving a separate plant, the insert including at least one arm adapted to bear against the container to maintain the insert in position, relative to the

container.

[0025] There is also disclosed a container for growing plants including a plurality of receptacles, wherein each of the receptacles is arranged for receiving a separate plant with gel for providing nutrition to the plant, and wherein the receptacles allow communication between the portions of gel in the receptacles to allow the plants to share a common feed reservoir of the gel.

[0026] There is also disclosed an apparatus for transplanting plants from a container having an insert as defined above, wherein the apparatus is adapted to remove each of the plants by gripping the plant at the respective portion of gel.

[0027] There is also disclosed an apparatus for transplanting plants from a container having an insert as defined above, wherein the apparatus operates automatically by being aware of the number of receptacles in the container, and the spacing between the receptacles.

Brief Description of the Drawings

[0028] The invention is described, by way of non-limiting example only, with reference to the accompanying drawings, in which:

Figure 1 shows a top view of an insert in a container, with plants in receptacles of the insert, in accordance with an example of the present invention;

Figure 2 shows a detailed side view of the insert of Figure 1;

Figure 3 shows a detailed top perspective view of a receptacle of the insert of Figure 1;

Figure 4 shows detail of a plant in an agar plug which has been removed from the insert shown in Figure 1;

Figure 5 shows a detailed side view of the agar plug;

Figure 6 shows a top view of an insert in accordance with another example of the present invention;

Figure 7 shows a bottom view of the insert of Figure 6;

Figure 8 shows a bottom perspective view of the insert of Figure 6;

Figure 9 shows a perspective view of an insert in accordance with another example of the present invention;

Figure 10 shows a perspective view of the insert of Figure 9, shown stacked with another like insert;

Figure 11 shows a detailed view of an arm of the insert of Figure 9;

Figure 12 shows a perspective view of the insert of Figure 9 shown in a container; and

Figure 13 shows a side view of a container fitted with the insert of Figure 9.

Detailed Description

[0029] With reference to Figures 1 to 8, there is shown an insert 10 for growing embryonic plants, in accordance with an example of the present invention. Advantageously, the insert 10 arranges the embryonic plants in such a way that a transplanting apparatus, such as an automated transplanting machine, is able to know where there plants are so that gripping fingers (or the like) of the transplanting apparatus are able to automatically transplant the plants from the insert 10, thereby dramatically cutting down on the amount of labour and the associated costs in producing a large number of mature plants. As the insert 10 ensures that the plants are planted in an orderly array, the transplanting apparatus is able to be programmed to remove the plants with attached agar plugs from the insert 10 for transplanting into soil.

[0030] The applicant has also identified that with completely independent cells/receptacles in the insert, the plants would not be able to share the agar food source. However, in preferred examples of the present invention, the insert 10 may provide for continuity of the agar volume in the different cells/receptacles so that the plants are able to share food, thereby reducing the mortality rate as some plants may grow more quickly than others and run out of food in an isolated cell.

[0031] More specifically, with reference to Figures 1 to 5, there is shown an insert 10 for growing plants 12, including a plurality of receptacles 14. The insert 10 is adapted for insertion into a container 16, and each of the receptacles 14 is arranged for receiving a separate one of the plants 12 with a portion of gel 18 for feeding the plant 12. The receptacles 14 may allow communication between the portions of gel 18 in the receptacles 14 to allow the plants 12 to share a common feed reservoir 20 of the gel. The receptacles 14 may be arranged such that all of the receptacles 14 are continuous with the common feed reservoir 20. For example, although the receptacles 14 are shown as being separate in the top view of Figure 1, Figure 2 shows several receptacles 14 through a side of the container 16, wherein the receptacles 14 share the common feed reservoir 20. The common feed reservoir 20 may be shared by all of the receptacles 14 by allowing the receptacles 14 to be in fluid communication with all of the other receptacles 14, by providing an aperture in each of the receptacles 14. Accordingly, each of the receptacles 14 may have a respective aperture 22 such that the portions of gel 18 are continuous with a common volume of gel 24 via each respective aperture 22. The aperture 22 may be located in a base 26 of the respective receptacle 14, as shown in the embodiment of Figures 6 to 8. The insert 10 shown in Figures 1 to 5 may be formed

in a similar configuration to the insert of Figures 6 to 8, and may comprise a circular section cut from the large rectangular insert of Figures 6 to 8.

[0032] In this way, by virtue of the apertures 22, when the insert 10 is in situ in the container 16, the container contains the gel and the insert 10 is immersed in the gel such that the gel rises to a common level in each of the receptacles 14. As shown in Figures 1 to 3, the amount of gel may be controlled such that this level of the gel is at or just below an upper surface of the insert 10.

[0033] The insert 10 may have one or more feet (not shown) to support the insert 10 above a floor 28 of the container 16 to provide space beneath the receptacles 14 for the common feed reservoir 20. The feet may be configured to support the receptacles 14 at least 3mm above the floor 28 of the container 16 so as to allow the common feed reservoir 20 to be of a sufficiently large size to provide enough food for the entire number of plants in the container 16.

[0034] With reference to Figure 3, the walls 30 of each receptacle 14 are smooth to allow upward removal of the respective gel portion 18 as a plug together with the respective plant 12 for transplanting. The removed gel plug 32 intact with the respective plant 12 is shown removed from the insert 10 in Figures 4 and 5.

[0035] The receptacles 14 may be arranged in a grid of rows and columns so as to facilitate automated removal of the plants 12. The plants 12 with the attached plugs 22 may be removed from the insert 10 simultaneously, one row at a time, or individually, however an important common aspect is that the insert 10 enables a machine to know where to locate each of the plants 12 in the container 16, which would not be possible without the insert 10, as the plants 12, without the structure provided by the insert 10, may be randomly distributed throughout the container 16.

[0036] Each of the receptacles 14 may be tapered inwardly (see Figure 8) toward a lower end 26 of the receptacle 14 so as to facilitate removal of the plugs 32 from the receptacles 14. As can be seen in Figure 4 and Figure 5, the plugs 32 are also tapered inwardly toward the bottom of the plugs 32.

[0037] The receptacles 14 may be sized with a top of each receptacle being square with 12mm sides, and with a bottom being square with 9mm sides. The insert 10 may be circular with a diameter of approximately 95mm, as shown in Figures 1 to 3. This size enables the insert 10 to be placed inside a container 16 of the type typically used for take away food. The insert 10 may have 37 receptacles 14 in total, being arranged in rows from one side to an opposite side with the following number of receptacles 14 in consecutive rows: 3, 5, 7, 7, 5 and 3.

[0038] The insert 10 may be formed of plastic material, and may be formed by plastic injection moulding. The container 16 may be circular, as per a typical take away food container, and may have a lid for maintaining sterility within the container 16. Because the food source is provided in the form of the gel 18, the container 16 may be closed from the time of planting the plants 12 in the gel 18 until the container 16 is exported to the destination country at which time the lid can be removed as sterility is no longer required once the container 16 has been brought into the destination country in its sterile form so as to avoid quarantine.

[0039] The gel 18 may be agar, supplemented with a nutrient and vitamin mixture that allows for seedling germination under sterile conditions. The seeds must be sterilised as well.

[0040] In another form, there may be provided a suitable container which has an integrally formed equivalent of the insert 10. In this way, the receptacles 14 may be integrally formed within the container, each of the receptacles being arranged for receiving a separate plant with gel for providing nutrition to the plant, the receptacles allowing communication between the portions of gel in the receptacles to allow the plants to share a common feed reservoir of the gel.

[0041] In yet another form of the invention, there is provided an apparatus for transplanting plants from a container having integrally formed receptacles, or an insert as shown in Figures 1 to 3 or 6 to 8. The apparatus may be adapted to remove each of the plants by gripping the plant by the respective plug so as to maintain the plug intact for transplanting. The apparatus may be in the form of a machine which operates automatically by being aware (either by programming or detection) of the number of receptacles in the container, and the spacing between the receptacles.

[0042] With reference to Figures 9 to 13, there is shown an insert 10 in accordance with another example of the present invention. The insert 10 depicted in Figures 9 to 13 is generally similar to the insert of Figure 1 and like features are labelled with like reference numerals. The main difference lies in that the insert of Figures 9 to 13 includes a feature specifically provided to maintain proper location of the insert 10 in the container 16. More specifically, the insert 10 includes at least one arm 34 adapted to bear against the container 16 to maintain the insert 10 in position relative to the container 16. In the example shown in Figures 9 to 13, the arm 34 is adapted to abut a lid of the container 16 to maintain the insert 10 in position relative to the lid. This may be achieved by arranging the arm 34 so that it has a length whereby a distal tip of the arm 34 terminates level with a lower surface of the lid when the insert 10 is in situ resting on the floor 28 of the container 16, as shown in Figure 13.

[0043] As shown in Figure 9, the insert 10 may have a pair of opposed arms 34 located on opposite sides of the insert 10 so as to hold the insert 10 securely in position. The insert 10 may also have feet 36 which extend below the receptacles 14 of the insert 10 so as to support the receptacles 14 above the floor 28, as shown in Figures 12 and 13. As shown in Figure 12, the feet 36 may be configured also to sit against a sidewall of the container 16 to hold the insert 10 laterally relative to the container 16.

[0044] In the example shown, each arm 34 is foldable between an initial condition (see Figures 9 to 11) wherein the arm 34 extends parallel to a plane of the insert 10 to a folded condition (see Figures 12 and 13) which is substantially perpendicular to the initial condition. The insert 10 may be formed with the arms 34 in the initial condition (parallel to the plane of the insert 10) to facilitate neat volume-efficient stacking of like inserts (see Figure 10). The receptacles 14 may also be tapered to facilitate stacking of the inserts 10, and the feet 36 may also be angled outwardly for this reason. Figure 11 shows detail of one of the arms 34 which may be scored where the arm 34 meets the remainder of the insert 10 such that the arm 34 can be bent upwardly along the score line to the folded upright condition.

[0045] By virtue of the arms 34, even if the closed container 16 is inverted the insert 10 will remain in its proper position relative to the container 16 by virtue of the tips of the arms 34 abutting against the lid of the container 16, thereby holding the insert 10 to sit against the floor 28 of the container 16.

[0046] The insert 10 may be transparent. Alternatively, the insert 10 may be opaque. The insert 10 may be provided with locating points in the form of the feet 36 having locating holes. In this way, the insert 10 may be used as a carrier tray and the locating holes can be used as reference points for a machine to locate/remove the plants. The use of the locating holes as reference points for this purpose may be performed by a computer software program which controls operation of the machine for locating/removing the plants. The locating holes on the insert 10 may be used for lifting the insert 10 from the container 16, as reference points for a robotic machine automatically locating the plants to remove the plants from the insert 10, and for holding the insert 10 for discarding same.

[0047] Advantageously, the container 16 fitted with the insert 10 allows plants to be efficiently transported between countries. More specifically, plants may be supplied by way of a method including the steps of: (a) growing the plants in a first country in a sterile environment, the plants being planted in agar for feeding the plants; (b) storing the plants in the sterile environment in a sealed container, the plants being arranged in a predetermined ordered arrangement in the container; (c) transporting the container to a second country in the sealed container; (d) opening the container in the second country; and (e) removing the plants from the container using a machine which automatically locates and removes each of the plants on the basis of the predetermined ordered arrangement.

[0048] While various embodiments of the present invention have been described above, it should be understood that they have been presented by way of example only, and not by way of limitation. It will be apparent to a person skilled in the relevant art that various changes in form and detail can be made therein without departing from the scope of the invention, as defined in the appended claims. Thus, the present invention should not be limited by any of the above described exemplary embodiments.

[0049] The reference in this specification to any prior publication (or information derived from it), or to any matter which is known, is not, and should not be taken as an acknowledgment or admission or any form of suggestion that that prior publication (or information derived from it) or known matter forms part of the common general knowledge in the field of endeavour to which this specification relates.

[0050] Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" and "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

Claims

1. A method of supplying plants (12) including the steps of:

   growing by tissue culture the plants (12) in a first country in a sterile environment, the plants (12) being planted in agar for feeding the plants (12);
   storing the plants (12) in the sterile environment in a sealed container (16), the plants (12) being arranged in a predetermined ordered arrangement in the container (16);
   transporting the container (16) to a second country in the sealed container (16);
   opening the container (16) in the second country; and wherein the method further includes the step of
   removing the plants (12) from the container (16) using a transplant machine which automatically locates and removes each of the plants (12) on the basis of the predetermined ordered arrangement,

   wherein said container (16) is fitted with an insert (10) for growing plants, including a plurality of receptacles, adapted for insertion into the container, wherein each of the receptacles is arranged for receiving a separate plant with a portion of gel for feeding the plant, and the insert (10) defines said predetermined ordered arrangement, wherein the receptacles allow communication between the portions of gel in the receptacles to allow the plants to share a common feed reservoir of the gel by providing an aperture in each of the receptacles.

2. A method of supplying plants (12) as claimed in claim 1, wherein the method includes the steps of providing the predetermined ordered arrangement of the

plants (12) to the transplant machine, and using the transplant machine to automatically transplant the plants (12) externally of the container (16) according to the predetermined ordered arrangement.

3. A method of supplying plants (12) as claimed in claim 1, wherein said step of transporting the container (16) to a second country in the sealed container (16) includes the step of transporting the container (16) through a border control of the second country which forbids entry of soil into said second country.

4. A method of supplying plants (12) as claimed in claim 1, wherein said method includes the step of using computer software controlling said transplant machine to locate each of the plants (12) automatically using one or more reference points provided on the insert (10).

Patentansprüche

1. Verfahren zur Lieferung von Pflanzen (12), beinhaltend die Schritte:

   Wachsenlassen der Pflanzen (12) durch Gewebekultur in einem ersten Land in einer sterilen Umgebung, wobei die Pflanzen (12) in Agar zum Nähren der Pflanzen (12) gepflanzt werden;
   Lagern der Pflanzen (12) in der sterilen Umgebung in einem versiegelten Behälter (16), wobei die Pflanzen (12) in einer vorherbestimmten geordneten Anordnung in dem Behälter (16) angeordnet werden;
   Transportieren des Behälters (16) zu einem zweiten Land in dem versiegelten Behälter (16);
   Öffnen des Behälters (16) in dem zweiten Land; und wobei das Verfahren weiterhin den Schritt beinhaltet:
   Herausnehmen der Pflanzen (12) aus dem Behälter (16) unter Verwendung einer Umpflanzmaschine, die jede der Pflanzen (12) auf der Basis der vorherbestimmten geordneten Anordnung automatisch findet und herausnimmt, wobei der Behälter (16) mit einem Einsatz (10) zum Wachsenlassen von Pflanzen, beinhaltend mehrere Aufnahmebehälter, eingerichtet zum Einsetzen in den Behälter, ausgerüstet ist, wobei jeder der Aufnahmebehälter zum Aufnehmen einer separaten Pflanze mit einer Gelportion zum Nähren der Pflanze eingerichtet ist und der Einsatz (10) die vorherbestimmte geordnete Anordnung definiert, wobei die Aufnahmebehälter eine Verbindung zwischen den Gelportionen in den Aufnahmebehältern ermöglichen, damit die Pflanzen ein gemeinsames Nährstoffreservoir des Gels nutzen können, indem in jedem der Behälter eine Öffnung vorgesehen ist.

2. Verfahren zur Lieferung von Pflanzen (12) nach Anspruch 1, wobei das Verfahren die Schritte eines Bereitstellens der vorherbestimmten geordneten Anordnung der Pflanzen (12) an die Umpflanzmaschine und eines Verwendens der Umpflanzmaschine zum automatischen Umpflanzen der Pflanzen (12) extern zu dem Behälter (16) gemäß der vorherbestimmten geordneten Anordnung beinhaltet.

3. Verfahren zur Lieferung von Pflanzen (12) nach Anspruch 1, wobei der Schritt des Transportierens des Behälters (16) zu einem zweiten Land in dem versiegelten Behälter (16) den Schritt eines Transportierens des Behälters (16) durch eine Grenzkontrolle des zweiten Lands, die eine Einfuhr von Erdboden in das zweite Land untersagt, beinhaltet.

4. Verfahren zur Lieferung von Pflanzen (12) nach Anspruch 1, wobei das Verfahren den Schritt eines Verwendens von Computersoftware beinhaltet, die die Umpflanzmaschine steuert, um jede der Pflanzen (12) unter Verwendung von einem oder mehreren Bezugspunkten, die auf dem Einsatz (10) bereitgestellt sind, automatisch zu finden.

Revendications

1. Procédé d'approvisionnement de plantes (12) comprenant les étapes consistant à :

   faire pousser les plantes (12) par une culture tissulaire dans un premier pays dans un environnement stérile, les plantes (12) étant plantées dans de la gélose pour alimenter les plantes (12) ;
   stocker les plantes (12) dans l'environnement stérile dans un récipient scellé (16), les plantes (12) étant agencées selon un agencement ordonné prédéterminé dans le récipient (16) ;
   transporter le récipient (16) vers un second pays dans le récipient scellé (16) ;
   ouvrir le récipient (16) dans le second pays ; et dans lequel le procédé comprend en outre l'étape consistant à
   enlever les plantes (12) du récipient (16) en utilisant une machine de transplantation qui localise automatiquement et enlève chacune des plantes (12) sur la base de l'agencement ordonné prédéterminé,
   ledit récipient (16) étant équipé d'un insert (10) pour faire pousser des plantes, comprenant une pluralité de réceptacles, adapté pour être inséré dans le récipient, dans lequel chacun des réceptacles est agencé pour recevoir une plante séparée avec une partie de gel pour alimenter la plante et l'insert (10) définit ledit agencement ordonné prédéterminé, les réceptacles permet-

tant la communication entre les parties de gel dans les réceptacles pour permettre aux plantes de partager un réservoir d'alimentation commun du gel en prévoyant une ouverture dans chacun des réceptacles.

2. Procédé d'approvisionnement de plantes (12) selon la revendication 1, dans lequel le procédé comprend les étapes consistant à fournir l'agencement ordonné prédéterminé des plantes (12) à la machine de transplantation, et à utiliser la machine de transplantation pour transplanter automatiquement les plantes (12) à l'extérieur du récipient (16) selon l'agencement ordonné prédéterminé.

3. Procédé d'approvisionnement de plantes (12) selon la revendication 1, dans lequel ladite étape de transport du récipient (16) vers un second pays dans le récipient scellé (16) comprend l'étape consistant à transporter le récipient (16) à travers un contrôle aux frontières du second pays, qui interdit l'entrée de terre dans ledit second pays.

4. Procédé d'approvisionnement de plantes (12) selon la revendication 1, dans lequel ledit procédé comprend l'étape consistant à utiliser un logiciel informatique commandant ladite machine de transplantation pour localiser chacune des plantes (12) automatiquement en utilisant un ou plusieurs points de référence ménagés sur l'insert (10).

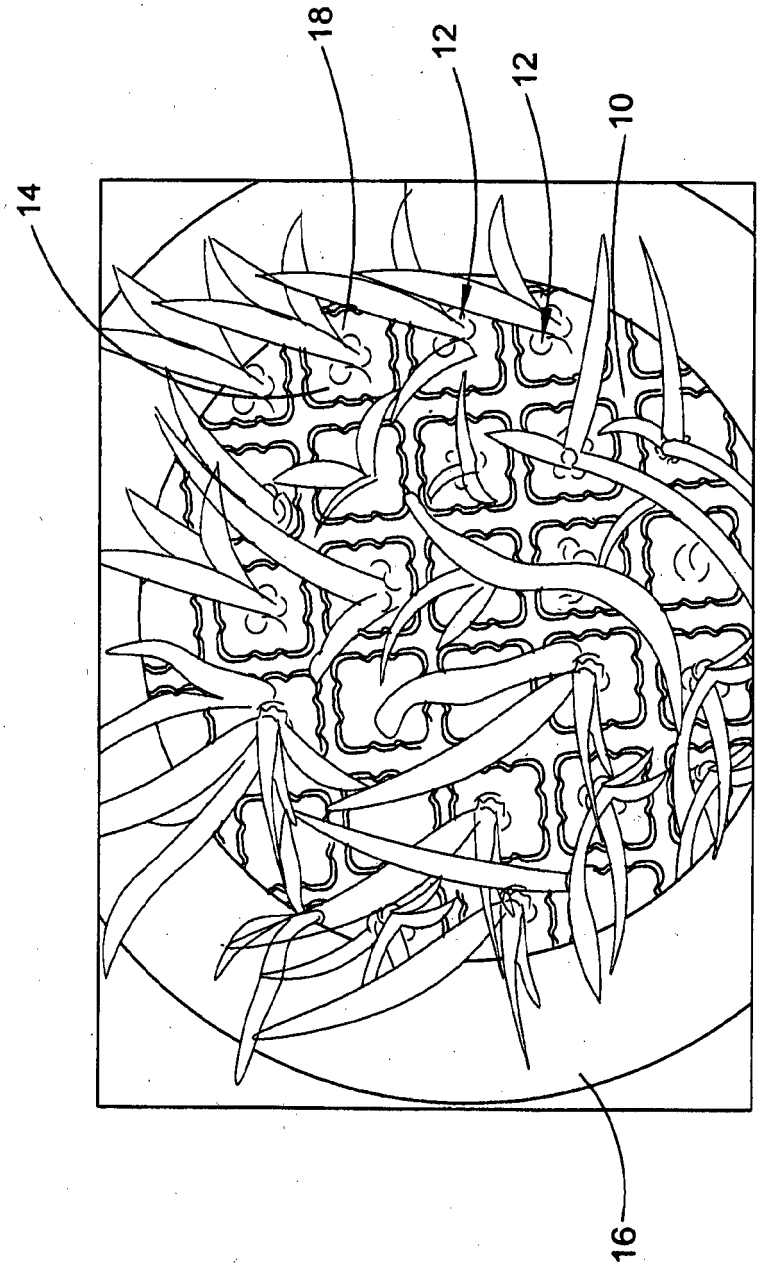


FIGURE 1

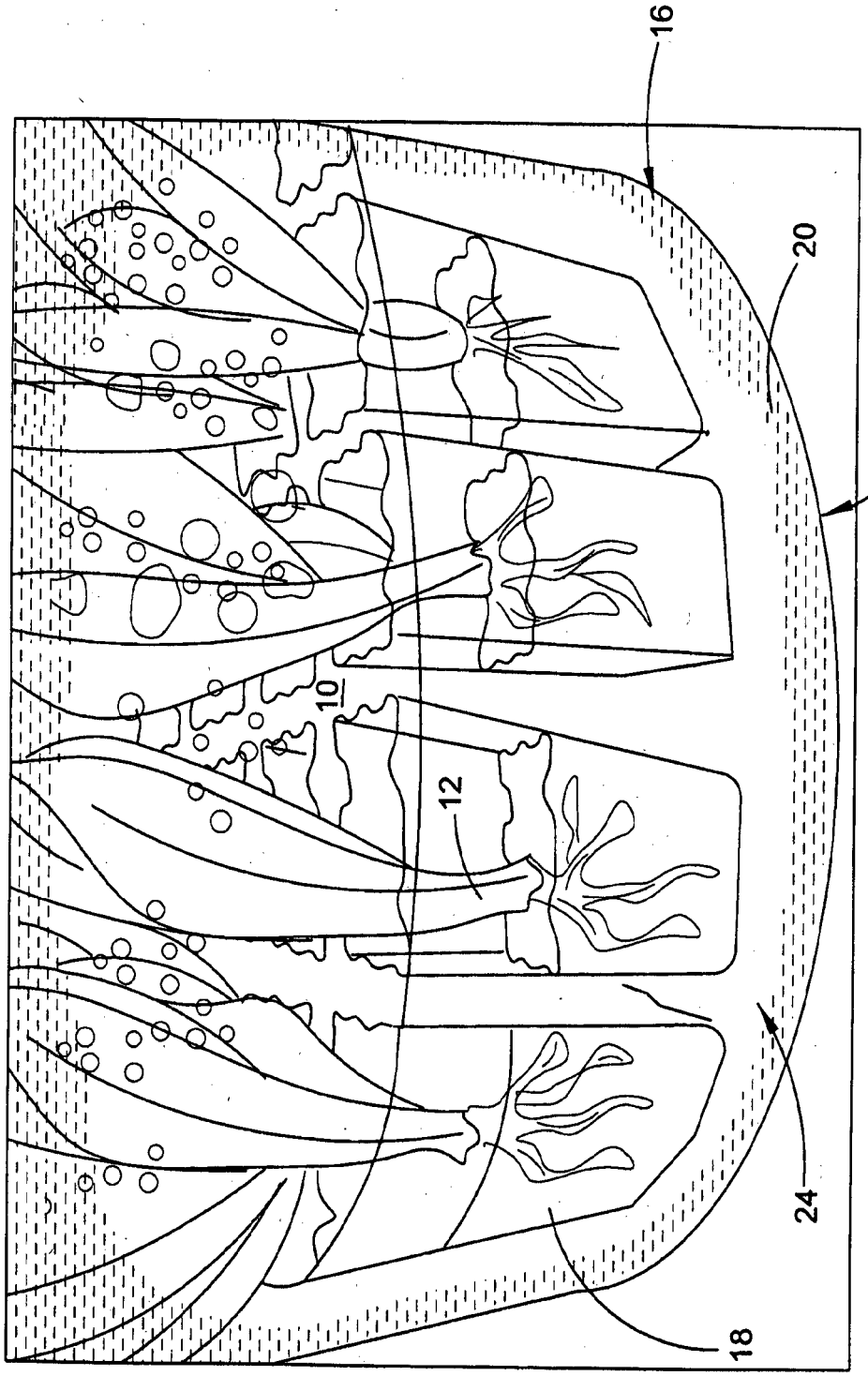


FIGURE 2

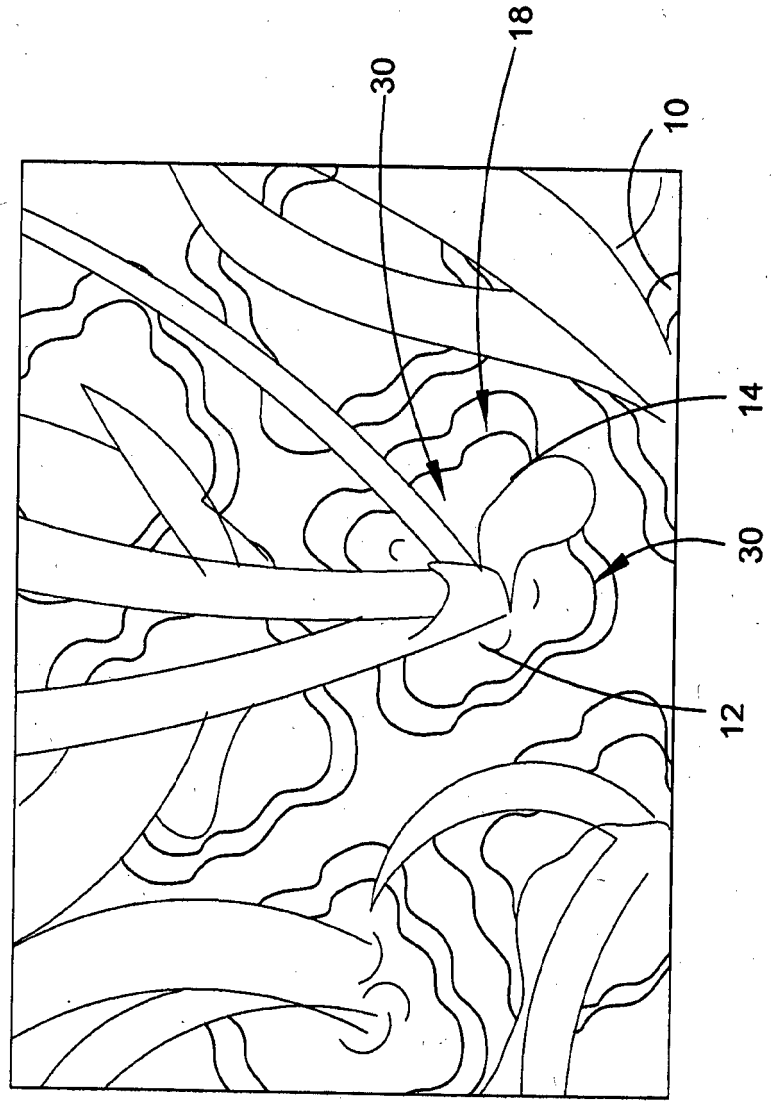


FIGURE 3

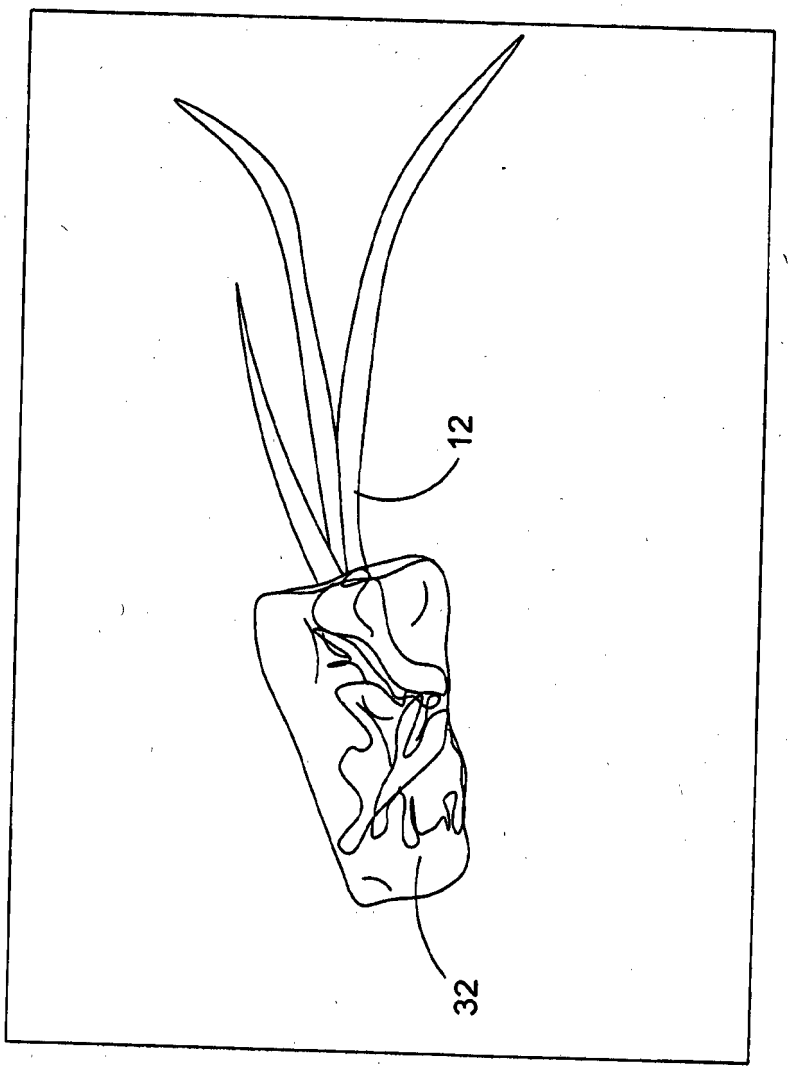


FIGURE 4

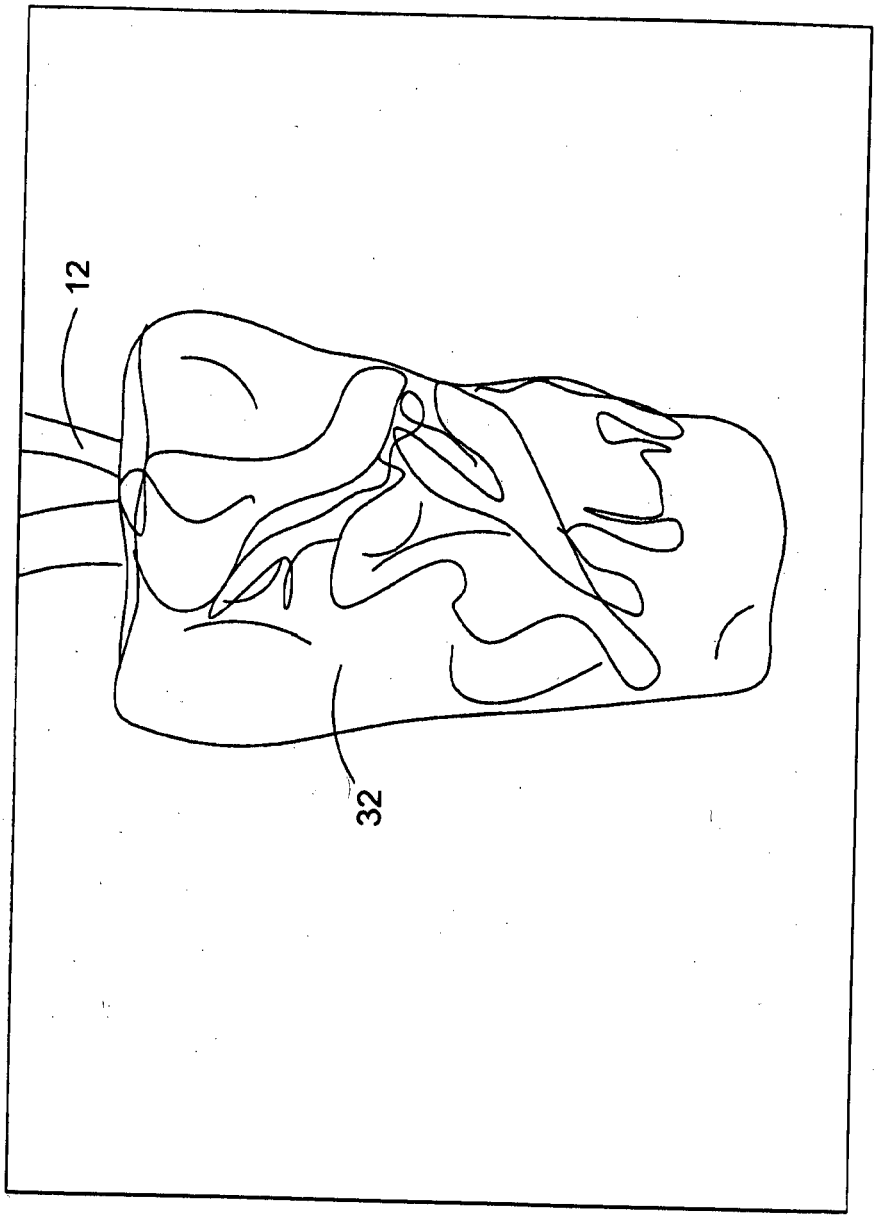


FIGURE 5

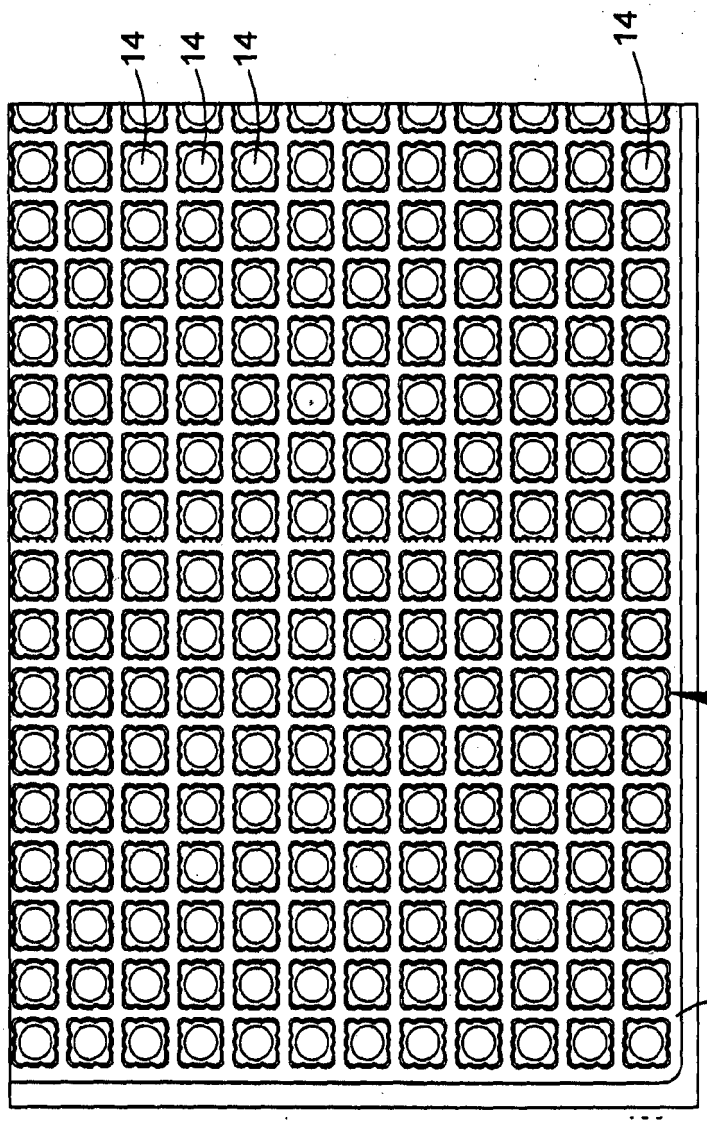


FIGURE 6

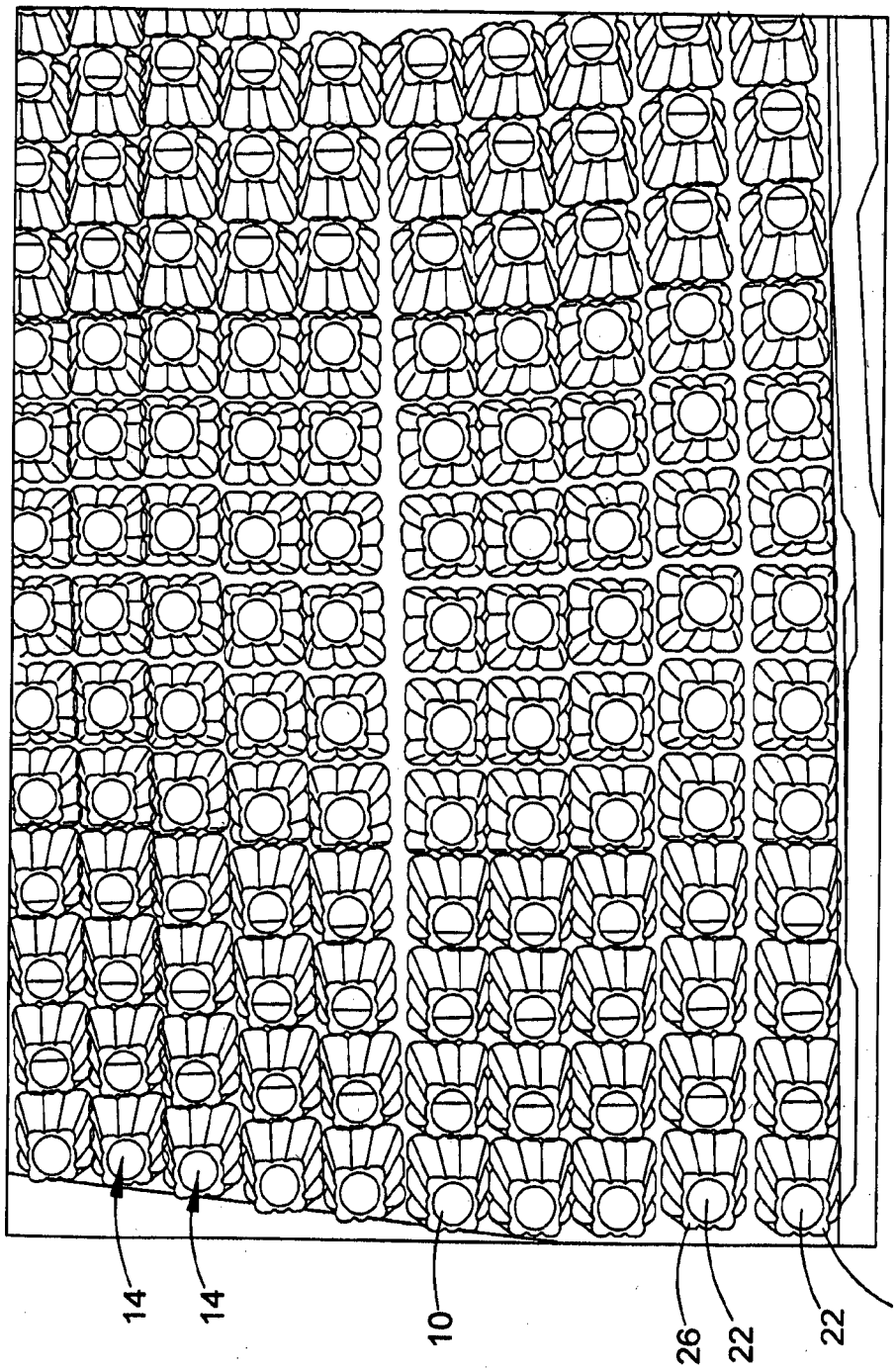


FIGURE 7

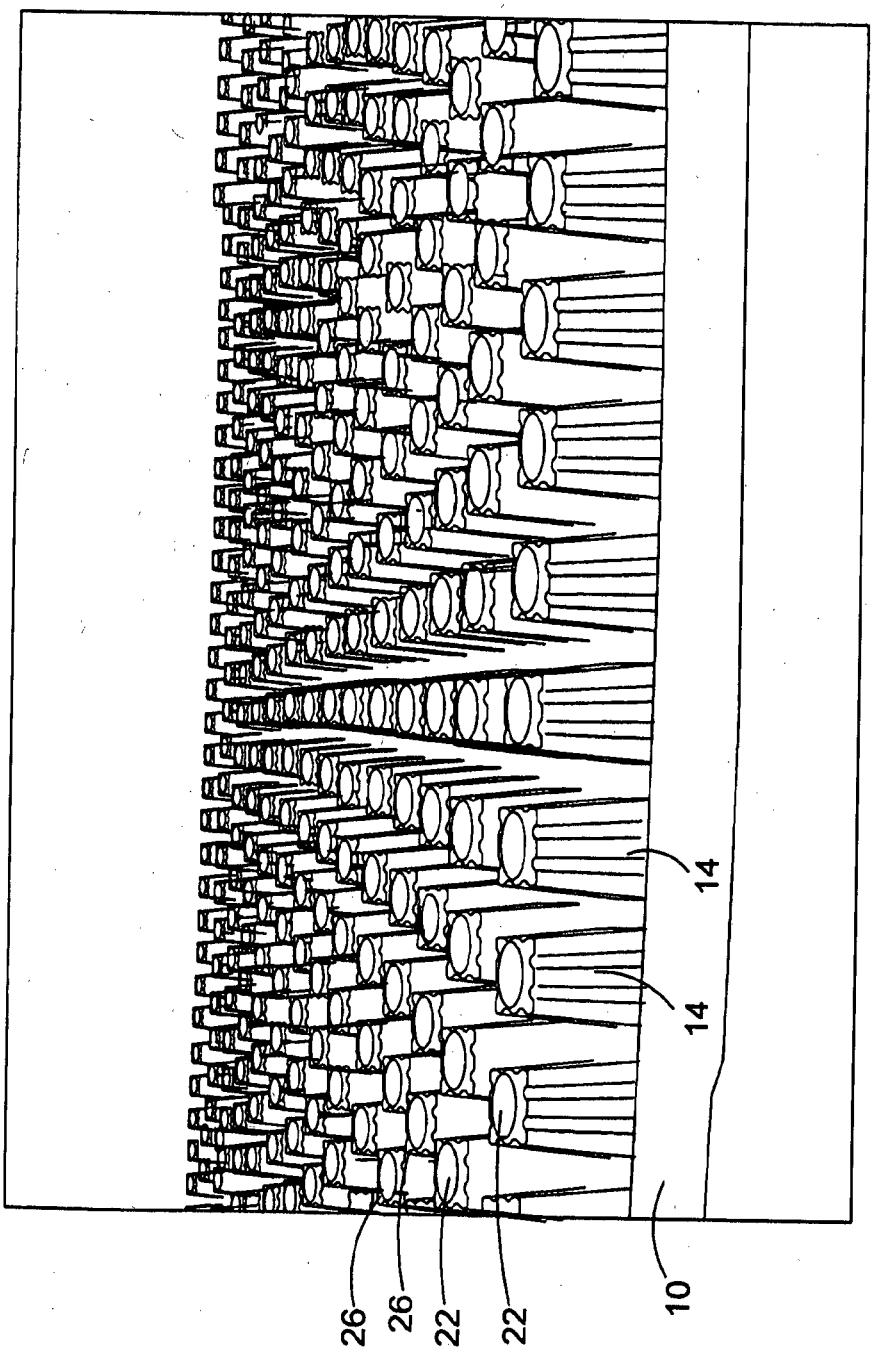


FIGURE 8

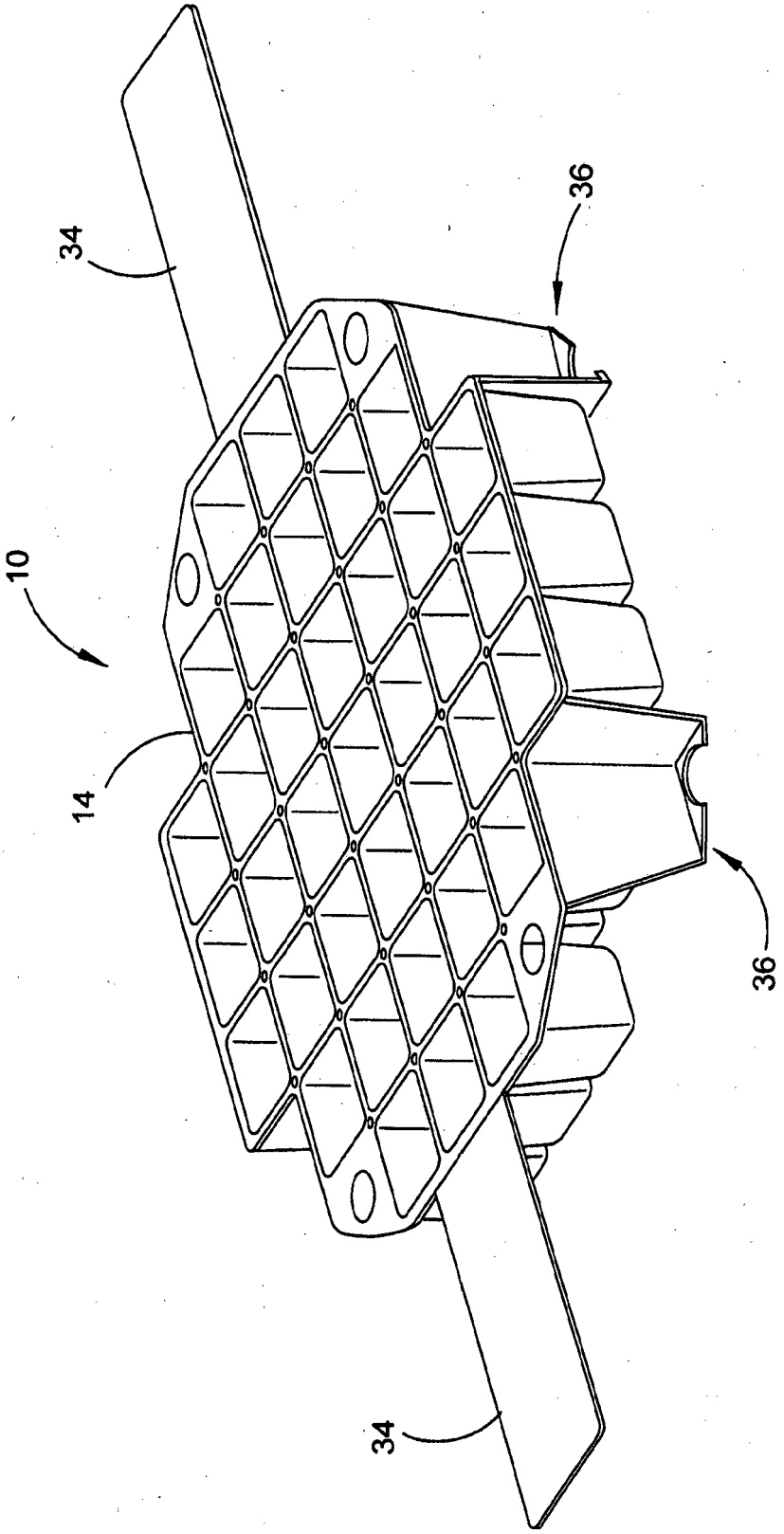
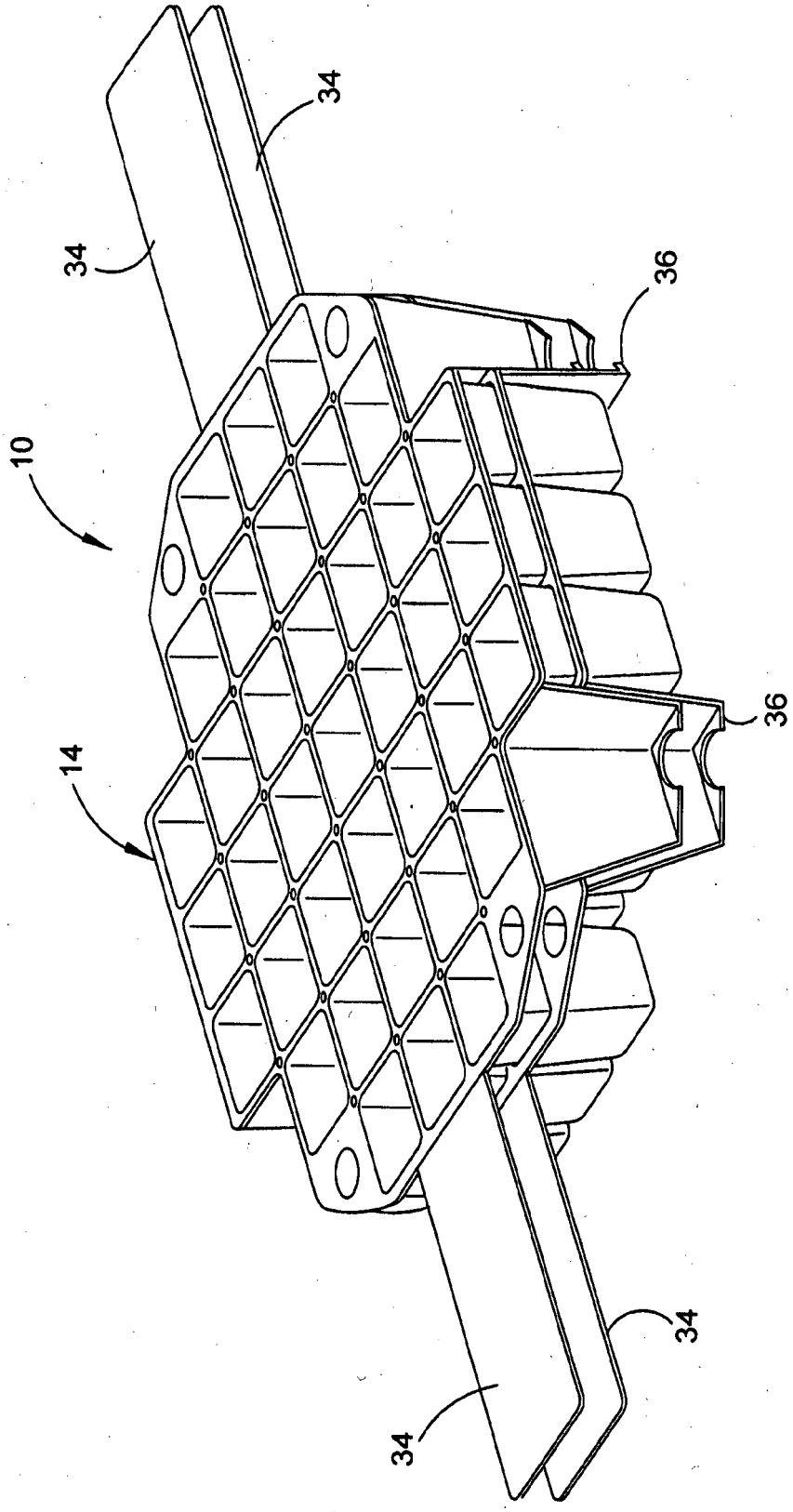


FIGURE 9



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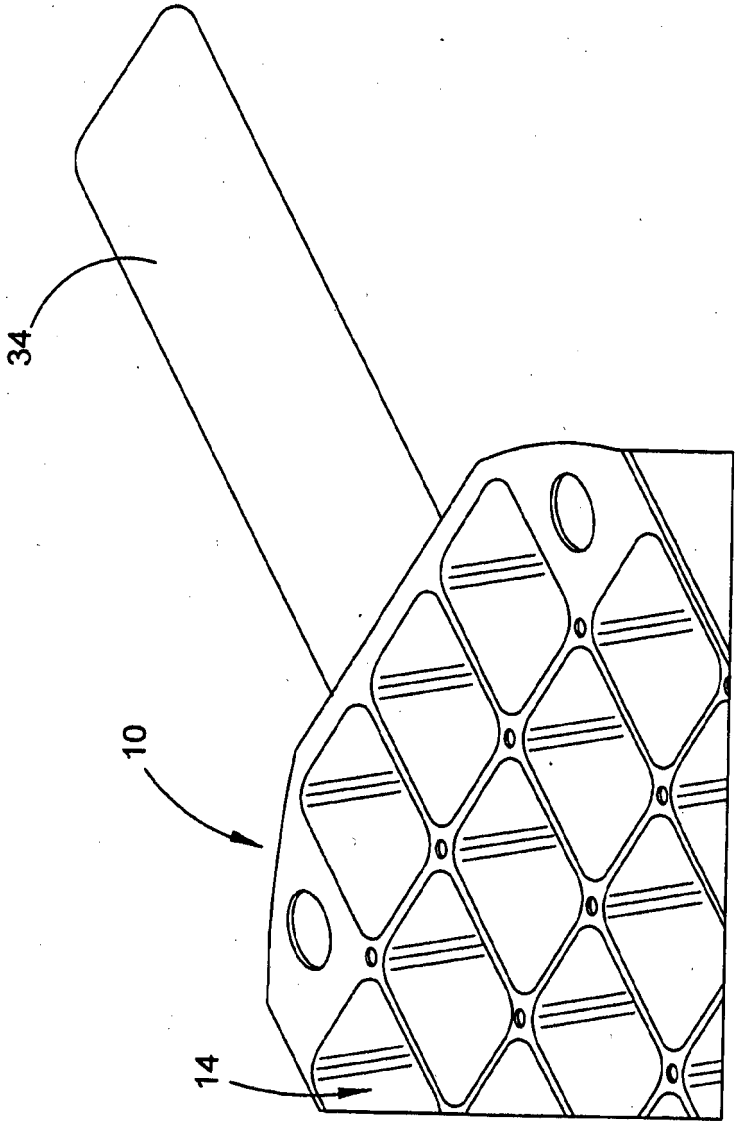

FIGURE 11

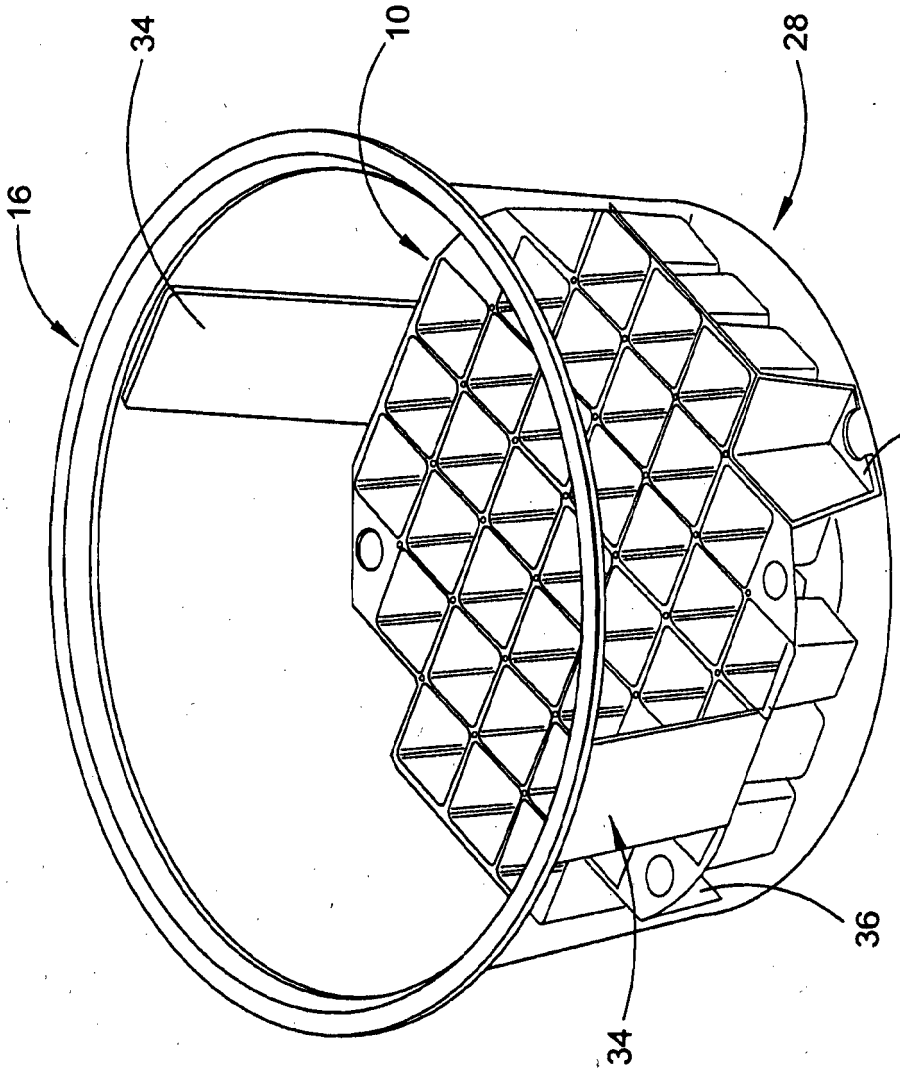

FIGURE 12

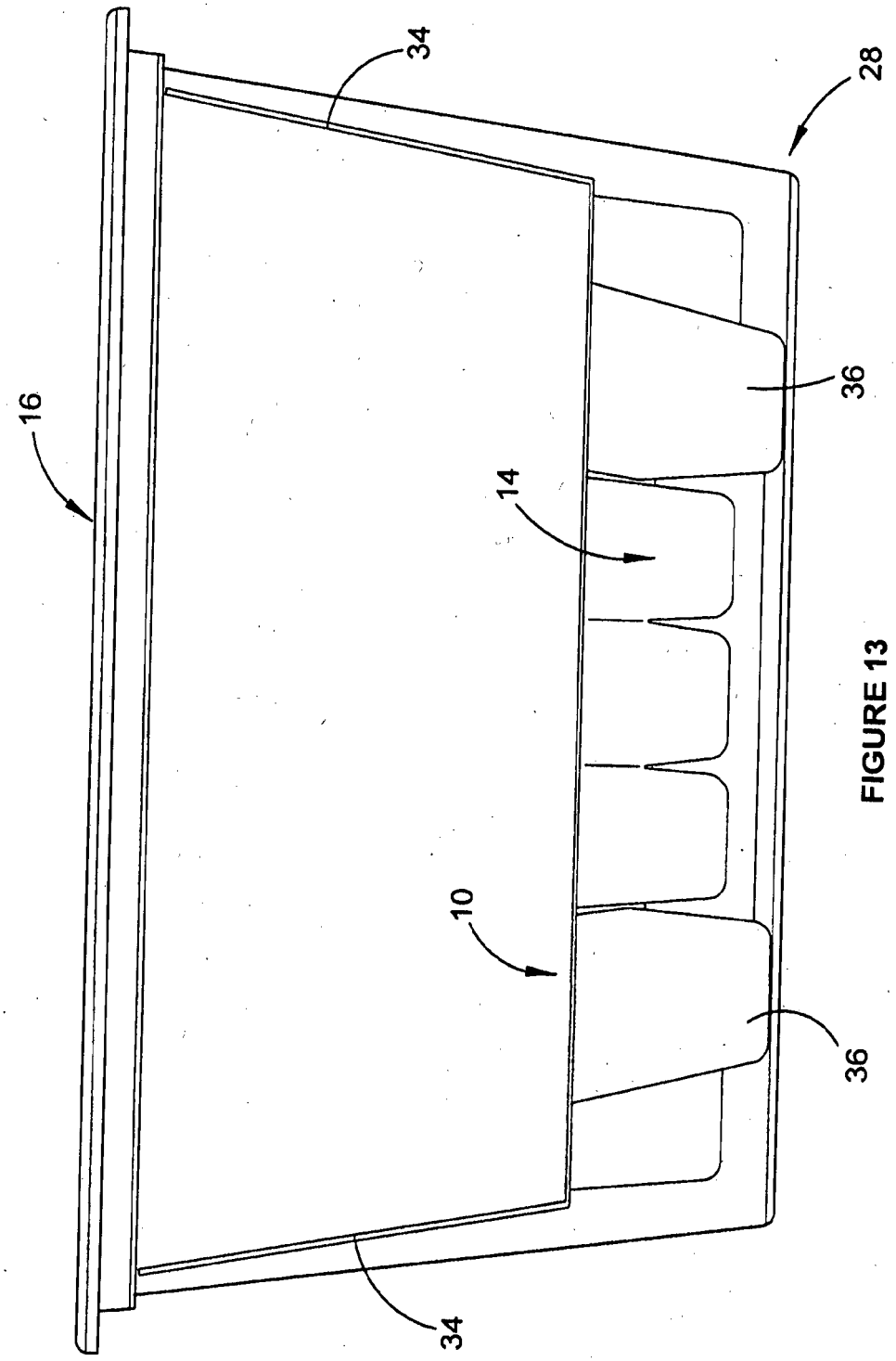

FIGURE 13

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- AU 2010001008 W **[0004]**
- US 2012272570 A1 **[0005]**